Metridium senile fimbriatum

A piling anemone (Verrill, 1865)

Phylum: Cnidaria
Class: Anthozoa, Zonatharia
Order: Actinaria
Family: Metridiidae

Description

Color—white when young: adult can be brown, orange, tan. Because of asexual reproduction, all animals in one area may be same color
Size—piling specimens average about 5 cm (2 inches) in diameter (tentacles); can be up to 6 inches; subtidal animals can be "10 gallon" size (Ricketts and Calvin 1971).
Column—stout, compact in young specimens, often long in old ones; usually over 5 cm long; not striped (Perkins 1977). A parapet (collar) is seen beneath the crown of tentacles (fig. 2).
Base—flat, attached to hard surface
Tentacles— fine, short, not knobbed. Number of tentacles increases with age: old ones can have hundreds (Perkins 1977). Tentacles arranged in lappet-like groups or lobes(fig. 1) (*ibid*). Can have up to 18 "catch" tentacles, short, blunt and opaque, near mouth (Morris and Abbott et al 1980).
Oral Disc—very little tentacle-free area around mouth. Siphonoglyphs (ciliated grooves) vary from 0-3; one usual (Hand 1955).
Mesenteries—vertical body cavity partitions: 3-15 pairs: not visible, as animal is opaque.
Acontia—threadlike structures, found in lower part of mesenteries, which are discharged through lower column wall when animal is disturbed. They are probably used for defense (Hyman 1940).
Nematocysts—several kinds present (Hand 1955); (fig. 3a, b). Contain a toxin with a protein fraction, dialyzable material with aromatic amines.

Possible Misidentifications

Anthopleura artemesia, an estuarine anemone with a white stalk, can be confused with young *Metridium*. It lives in fine sand however, not on pilings, and when extended, its tentacles are pink or green, and heavy. The only other local species of *Metridium* is *M. exilis*, a small, open coast animal with fewer than 100 tentacles, and a yellow, orange or red column (Hand 1975). No other anemone besides *M. senile* in the area has over 200 tentacles. *M.s. fimbriatum* is the name given the Pacific Ocean specimens (Hand 1955).

Ecological Information

Range—circumpolar, northern hemisphere; harbors and bays or Atlantic and Pacific Oceans; Pacific Coast: Sitka to Santa Barbara, California; type locality: San Francisco Bay (Hand 1955).
Local Distribution— protected pilings in larger Oregon estuaries: Coos Bay.
Habitat—likes bare, shaded pilings; can also attach to dead shells, tunicate *Styela*, kelp crab *Pugettia,* Barnacles (Ricketts and Calvin 1971).
Salinity—collected at 30‰, Coos Bay; at 27 ‰, Puget Sound (communication, R. Boomer) Tolerates brackish conditions: to 68% seawater in San Francisco Bay.
Temperature—temperate to cold waters (Hand 1955). Metabolic rate often positively correlated with temperature: acclimates well.
Tidal Level—can tolerate limited exposure found between 0.0 and -1.0 to low water on pilings, especially in summer (Kozloff 1974a). Flourishes well subtidally. even in deep water (to 60 fathoms). Most abundant at slightly above mean low low water Largest specimens are "well out from shore" (Hand 1955).
Associates—in Puget Sound: *Haliplanella luciae,* a Japanese anemone: on protected pilings, sea star *Pisaster*, tunicates *Styela, Dona*, and *Cnemidocarpa* (Ricketts and Calvin 1971).

Quantitative Information

Weight—
Abundance—"common on pilings, floats, and jetties of bays and harbors, as well as subtidally" (Hand 1975). Especially abundant in dark quiet corners.

Life History Information

Reproduction—sexual: oviparous, separate sexes, discharges eggs or sperm from mouth into water. Sperm have wedge shaped heads; eggs are pinkish, about 0.1 mm diameter; planular larvae settle as young anemones. Asexual reproduction: by "pedal laceration", small amount of tissue is left on substrate as anemone moves about; each small clump forms new anemone. Other asexual reproduction may be by "longitudinal fission", laceration, and budding (Hand 1955). Asexual re-production accounts for the often irregular siphonoglyphs and septa (mesenteries), which make *M. senile* a poor choice for lab use (Hyman 1940).

Growth Rate—

Longevity—survives well in small aquaria with running seawater.

Food—an active predator and carnivore, it eats very small organisms, unlike many anemones which manage larger prey (Kozloff 1974a). Also eats algae *Enteromorpha intestinalis* and *Desmarestia viridis* (Perkins 1977). Large specimens may be exclusively microplankton feeders while small ones closer to shore eat macrofood and perhaps some plankton (Hand 1955).

Predators—

Behavior—In dense groups of small animals, catch tentacles, used only for stinging, not feeding, serve to keep anemones separate (Morris and Abbott et al 1980). At low tide they can be seen on the sides of pilings hanging "fully relaxed and pendulous" (Ricketts and Calvin 1971).

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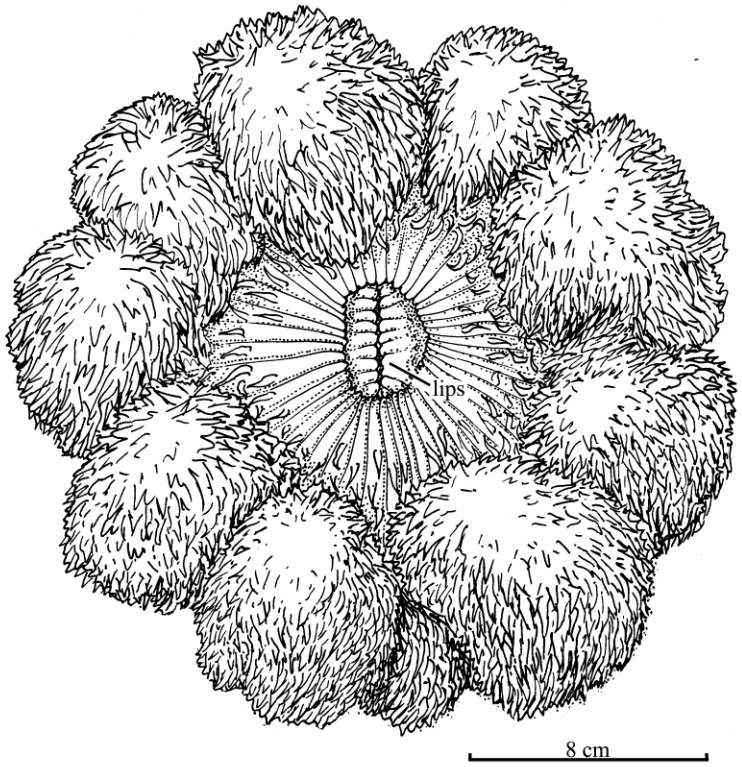
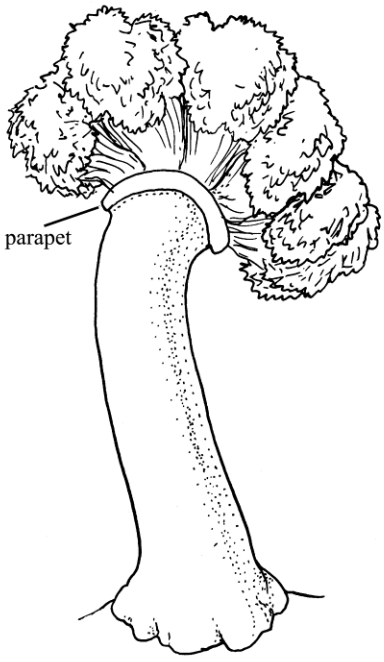
Metridium senile

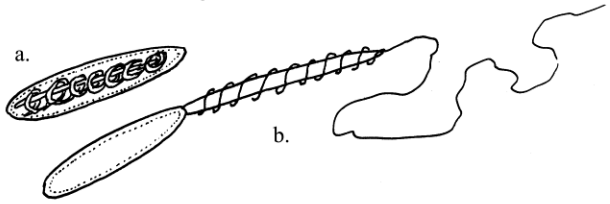


1. *Metridium senile* (dorsal view, D: 24cm):
large subtidal specimen, many small tentacles in lobe-like groups; column stout, not striped; base flat, attached; oral disc with obvious lips.



2. Subtidal specimen (lateral view) x1

3. Nematocysts (generalized):
a. undischarged
b. discharged



4. Small piling specimen (D:6cm) x1